

RELIC ENTERTAINMENT

World Builder: Dawn of War II

Quick “How-To” Guide

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World Builder

Introduction

This guide is a quick 'HOW-TO' for using Dawn of War II's map creation tools, the World Builder. It describes how to make a simple map, create an archive and outlines some common pitfalls. It is highly recommended that everyone take a quick look at this document before attempting to use the map editing tools, as it details minimum requirements for a valid map as well as some common pitfalls that should be avoided. A simple map '4p_SmallDemo' has been included with the World Builder that can be used as a quick reference to see how something works.

Usage on Vista

On Vista this behavior requires admin privilege so the World Builder will need to be run as an administrator. To start the WorldBuilder with admin privileges, right-click on the WorldBuilder.exe and select 'Run as administrator'.

Recommended Specification

The World Builder runs at the highest visual quality by default. There is no way to turn this down. Therefore, it's recommended to use a machine that can run Dawn of War II at High to Ultra visual settings. Lower specification machines will potentially render maps incorrectly.

Commonly Used Terms

- **Root** or **Root Folder** – Refers to the base path that the game is installed to by Steam. I.e. If Steam has installed the game to 'C:\Program Files\Steam\SteamApps\common\dawn of war 2', this is the Root Folder. In the document, paths are noted in the following manner:
<root>\GameAssets\Archives.
- **Bake** or **Baking** – Refers to the process of taking raw assets from a tool and turning them into assets that can be loaded by the game.
- **Dev Mode** or **Preview Mode** – Running the game with the -dev command parameter. This runs the game using loose files in the <root>\GameAssets\Data folder as well as loading the archives.
- **Mod Mode** – Refers to running the game with the -mod <modname> command parameter. This runs the game using the <root>\GameAssets\Mods\<modname>.sga archive as well as the default retail archives.
- **Entity** – Refers to a game object. A building, a fern and a placed squad are all considered entities.
- **[YourMapName]** – Refers to the name you choose for your map.

Creating Your First Map

1. Run WorldBuilder.exe, and select File -> New
2. Choose an appropriate size for the map, then press OK
 - a. By making the Terrain size larger than the Playable Area the outskirts of the map can be made more aesthetically appealing.
 - b. FOR REFERENCE: A Dawn of War II 1 vs. 1 map never has a smaller playable area than 256 by 256, and a 3 vs. 3 map never larger than 512 by 512.
3. Name and Save the map
 - a. To Name the Map: Scenario->Scenario Properties, write name in 'Map Name' field
 - b. To Save the Map: File->Save As... and save to
`<root>/Assets/Maps/PvP/[YourMapName].wb-scenario`
 - c. REMINDER: Save progress often. The editor crashes without warning.

Warning: The World Builder will save by default to `<root>/Assets/Maps`. If maps are not saved to the `<root>/Assets/Maps/PvP` folder they will not be baked to the correct location for the game.

4. Add starting positions to the map
 - a. Click the Object Placement icon, or press F2 on the keyboard.
 - b. In the Object list select the following: `ebps->world_objects->gameplay->starting_position_pvp_menu`
 - c. Place two of these Objects into the map by right clicking on the desired player start location.
 - i. World objects can be selected by left clicking on them, and they can be moved by dragging them with the mouse.
5. Assign players to Starting positions
 - a. Select a starting position, in the Object menu, under 'Current' change the 'Player assignment' from World to Player 1 and 2 respectively.
6. Add other gameplay objects
 - a. **Victory Point:** `ebps->world_objects->gameplay->victory_point_pvp`
 - b. **Power Point:** `ebps->world_objects->gameplay->strategic_point_pvp`
 - c. **Requisition Point:** `ebps->world_objects->gameplay->strategic_point_requisition_pvp`
 - d. **Turrets:** `ebps->world_objects->gameplay->turret_position_pvp`
 - i. Remember to assign any turrets to the same player as the base they are defending is.
7. Save and Bake the Map: File->Save & Bake
 - a. If the map was saved in the proper location, it will be saved again, and Baked, which makes the map ready to be played in-game.

Caveats

Consider the following when creating maps:

- The World Builder will crash without warning. Save all progress often.

- There are prototype and/or legacy features present that are not used and/or are no longer stable. This means that some features might corrupt maps. It is recommended to backup work regularly.
- It is possible to create a map that will cause the game to crash. Preview maps that are in progress frequently to ensure that the map has no elements that crash the game.
- The World Builder is provided as is, and THQ and Relic does not support it.

Running Your First Map

Run the game with `-dev` as a command line parameter. There are two ways to do this:

1. Add the parameter to a desktop shortcut (RECOMENDED)
 - a. In Steam, under the 'My Games' tab, right click on Warhammer 40,000: Dawn of War II. Select 'Properties', click the 'Create desktop shortcut' button. On the desktop, right click on the shortcut, select properties, and in the 'Target' text field type `-dev` after the target path. Move the shortcut to any convenient location.
2. Add the parameter in Steam
 - a. Under the 'My Games' tab, right click on Warhammer 40,000: Dawn of War II. Select 'Properties', click the 'Set launch options...' button and write `-dev` in the text field.

Once the game is running with the command line parameter, navigate to Multplayer->Custom Games->Private, and select a race. The newly created map will be in the Map drop down list. Choose the map and play a game.

WARNING: To play maps with other players, the map has to be packaged. Unpackaged maps can be tested against AI only.

Packaging Your Map(s)

The archive creation tool makes it easy to create map packs. Map archives are easier to share with the community, and ensure that everyone uses the same version of maps. Some minimal text edits are required to archive maps.

Creating an Archive Design File

In order to create an archive of the new map, create a design file. An example is included, which can be used as a reference and as a starting point. Browse to the `<root>\Assets\ArchiveDesign` folder and make a copy of the `4p_SmallDemo.sga_design` file in the same folder and rename it to `[YourMapName].sga_design`.

Opening this new file in a text editor will reveal an XML file. There are three things to change in this file:

1. In the Archive element (first line) adjust the attributes to the new name.
2. Adjust the root path to mirror your local machine
3. Change '4p_SmallDemo.sga' to `[YourMapName]`

```
<Archive Name="[YourMapName]" DefaultCompression="Buffer"  
DefaultRoot="<root>\GameAssets" ArchiveFile="Mods\[YourMapName].sga">
```

WARNING: In the above, <root> will be the full path on your local drive. ie. DefaultRoot="C:\Program Files\Steam\SteamApps\common\dawn of war 2\GameAssets".

Creating an Archive

Browse to <root>\Tools\Bin and open CreateArchive.bat in a text editor. Modify the following:

```
Archive.exe -c -r ..\..\GAMEASSETS\ -cf  
..\..\Assets\ArchiveDesign\%1.sga_design -a C:\DOW2-  
WB\Root\GameAssets\Mods\%1.sga -log %1.log
```

The C:\DOW2-WB\Root must be replaced with the equivalent <root> for your local drive. Once that is done, save and close this file.

From a command prompt (DOS Box) or Start->Run, execute:

"<root>\Tools\Bin\CreateArchive.bat [YourMapName]".

A new file is created in <root>\GameAssets\Mods called [YourMapName].sga. A log file is also created in <root>\Tools\Bin called [YourMapName].log.

WARNING: You need to run the .bat file from a command line. The .bat file does not run if you double click it.

WARNING: This archive design file will package up all files in the <root>\GameAssets\Data\Maps folder into the archive file. You should clear out test maps that you do not to package.

Running an Mod Archive

Create another shortcut to the game executable, and add '-mod [YourMapName]' to the command line in same was as for the preview mode and '-dev'. Running the game with this mod will load the <root>\GameAssets\Mods\[YourMapName].sga archive and the map will be available to play for Custom Multiplayer.

Playing with Friends

For friends to be able to play the game, they need to save the archive in the same location, and run the game with the same -mod command.

Adding Additional Maps to a Single Archive

A single archive can hold any number of maps. However, make sure that no incomplete maps or test maps are in the <root>\GameAssets\Data\Maps folder, before creating the archive. Clean this folder out first, then Save and Bake your map(s) selection in the World Builder and create a new Map Pack.

Troubleshooting

- **Problem:** The map does not appear in the dropdown list.
 - **Solution:** Ensure that the map was saved to <root>\Assets\Maps\PvP and that there are map files located in <root>\GameAssets\Data\Maps\PVP.

- **Solution:** Ensure that you are running the game with the `-dev` option.
- **Problem:** The player slots are non-existent or that there are an odd number of them.
 - **Solution:** Ensure that there are an even number of starting positions and that each is assigned a unique player number in the World Builder.

Localization

The World Builder interface is in English only. However, it uses localized speech archives. Users that are not using the English version of the game will need to open `<root>/dev_pipeline.ini` in a text editor and modify the Locale setting in the `[global]` section. Depending on what locale the game is running, set this to be one of: french, german, russian, spanish, italian, czech, tchinese, polish, or hungarian. To find out which locale the game is running, `<root>/GameAssets/Locale` contains a folder with the speech archives; the name of that folder is the current locale.

WARNING: If you do not do this, the World Builder will crash when maps are opened.

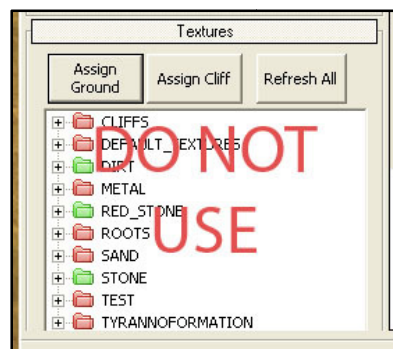
WARNING: The `<root>/dev_pipeline.ini` file will likely be over-written in a future patch. If the game is patched, you will need to reset this locale setting.

Feature Areas

This section focuses on some functional areas that are potentially confusing to users.

Texture Tile Painting Editor (F7)

This panel contains textures that can be painted on a map. The World Builder requires a combination of two textures to be used to create what is called a 'layer'. These two textures consist of a ground and a cliff texture and are processed into a combined texture file. Unfortunately, this processing mechanism is not included in this version of the World Builder. However, all the existing texture packages that ship with the game are available for use.



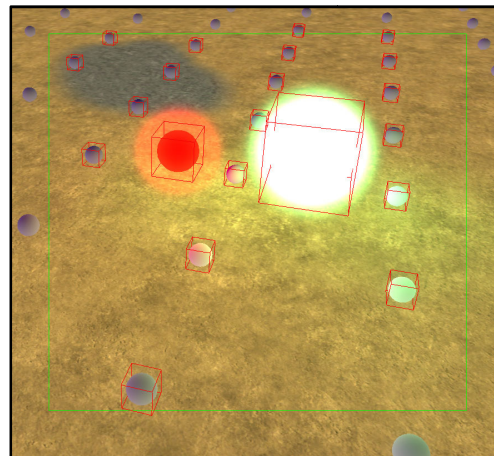
Therefore, users are restricted to using options that are available in the Existing Layers section, and new layer combinations cannot be created.

WARNING: If a new layer combination is created, the end result will be pink "texture missing" textures in the game.

Lighting Mode

Selecting the 'Lighting Mode' button activates lighting mode. This is how the map artists can add additional light sources to the map. This feature can be used to lighten up a section of the map, or to add high-lighting.

Open up the two sections of the dialog by clicking on the Lighting and Light Object heading on the right panel. To add a light, just right click on the map. This light can then be moved around like any other object. Clicking and dragging it moves it around in the X-Y plane. Holding the H key down allows it to move along the Z-axis. The size and color of the object can be set in the Light Object section.



In order to test color changes quickly, select a number of environment probes (these are the little black boxes that form a grid on the map), and run a Quick bake lighting from the Lighting section. For additional environment probes, these can be added to the map in the same manner as lights. This will give an idea how the lights will look in their immediate vicinity.

Once satisfied with how they look, be sure to run a Bake Lighting, this is a longer process that will add the light map to your map files.

WARNING: If the map in game does not look as good, or the lighting seems to be wrong, remember to Bake lighting.

Atmosphere Properties

From the menu, select Scenario->Atmosphere Properties to bring up the Atmosphere Properties dialog. This is where a number of very important global settings are configured. Once the settings are set to satisfaction, this file should be saved to <root>\Assets\Maps\Atmospheres.

Sunlight

This is where the color intensity and position of the sunlight is configured. It allows map artists to set a very general light scheme for a map. This can be modified in different ways to make deep jungle maps, a bright desert scene or a polluted Hive city be very distinct in terms of lighting.

Fog

This is where fog on a map is configured and implemented. Be sure to make the fog look visually consistent with the lighting and environment of the map.

WARNING: Does the Fog of War look really terrible on your newly created map? You should adjust the settings of the Fog on the map to make it look better.

Terrain Properties

From the menu, select Scenario->Terrain Properties to bring up the Terrain Properties dialog. This is where the Giant Shadow type is set, as well as setting the appearance of water on the map.

Limitations and Known Issues

The World Builder has a number of limitations and known issues. Below are some of those.

Object Placement and Pathfinding Considerations

Dawn of War II pathfinding algorithms essentially operate on sector maps being created on the map. These sectors are made visible, by selecting Overlay->Draw Overlay Map->Draw Sector map. There should be no more than 40,000 of these sectors on a map.

While adding buildings to the map, regenerate the pathfinding by selecting Overlay->Regenerate All Pathfinding (Shift-F5). The effect is displayed on the sector map.



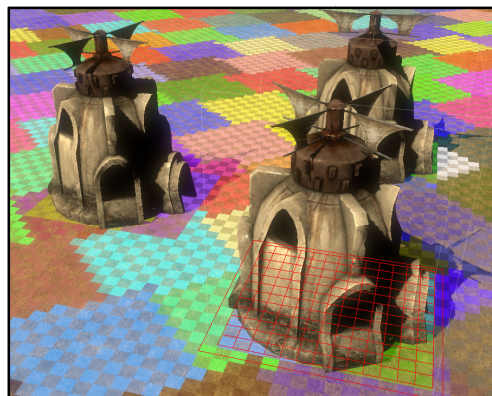
No entity can cover more than approximately 200 sectors. So if too many entities are placed on top or in close proximity to one larger object, some issues will occur in the map. The new map, (4p) Medean Cliff Mines contains a large ground fan that can be used as a guideline for how much density can be used around a large object.

WARNING: If the World Builder crashes when attempt to save a map, you may have broken this pathfinding limitations.

WARNING: Does the custom map seem to crash the game when you are playing in a particular area of the map more than others? Remember that game play actions can affect pathfinding, so building destruction or construction (ie. Turrets) may have pushed a close to the limit area, over the limit.

Impass

After rebuilding the pathfinding for a map, view the Impass overlay in the same manner as the Sector map. Red and orange squares are impassable for the current pass type. Red squares are terrain that is impassible due to terrain or entities. Orange sector are user painted impasses using the Impass Map Editor. It is a good idea to ensure that important areas are not blocked off, or that there are not too many overly narrow choke points as these areas will have a negative impact on the pathfinding.



Furthermore, be careful with bridges. Bridges are passable with the exception of a very narrow strip of impass on the edges in order to keep units from falling off the edge. It is advisable to paint the bottom of crevasses or gaps impassable as it will keep from having jump units leap into them.

WARNING: If you use a long bridge to cross a narrow gap, the impass of the long bridge still applies and you will see unexpected pathing behavior around the bridge entrance. Check the impass map to see what is happening..

WARNING: If you find that you cannot path over a bridge, did you paint the bottom of the gap immediately below the bridge to be impassable?

WARNING: In the grim darkness of the 41st millennium, stairways are bridges.

WARNING: You may need to smooth out your terrain if you find there are lots of impassable areas after using the Terrain Height Editor.

WARNING: Water areas become impassable at 50 cm, or 0.5 meter.

Water

The water editor does occasionally displays water in the World Builder differently than water in the game. If something does not look correct or looks like clipping, check in the game first.

Water objects are fairly performance expensive items, and only one should be used per map.

Included Tools

- <root>/Tools/Bin/Archive.exe
- <root>/Tools/Bin/Bake.exe
- <root>/Tools/Bin/CreatArchive.bat
- <root>/Tools/Foreign/nvdx.exe
- <root>/WorldBuilder.exe
- <root>/dev_pipeline.ini

There are additional files that can be located in:

- <root>/Tools/ToolsData
- <root>/Assets
- <root>/GameAssets/Mods

Acknowledgements

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